AUSTRALIAN SOCIETY FOR LIMNOLOGY

NEWSLETTER

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Australian Society for Limnology

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Australian Society for Limnology Newsletter

Volume 26 Number 1 February 1988

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Copy deadline for next issue:

Material for publication in the May issue of the Newsletter should be sent to the Editor before 15 th April 1988.

Australian Society for Limnology

The Australian Society for Limnology is an association of over 400 people with professional or amateur interests related to Australian inland waters. Since its inception in 1961, the Society has played an important role in fostering limnology work in this country. The ASL promotes liaison between limnologists in academic, private and governmental institutions and has a vested interest in the conservation of aquatic and related resources. Annual conferences are held near centres of limnological interest, and the programme includes scientific sessions, field excursions and social activities.

The ASL produces a newsletter with notes on activities, articles of general interest, book reviews and conference announcements; a Bulletin of original scientific papers and occasional Special Publications. A further publication is the Directory of Australian Limnologists.

Membership details

Membership applications are welcome; five classes of subscribing membership are available:

Ordinary Members:	$20.00
Student Members:	$10.00
Life Members:	$200.00
Institutional Members:	Fees on application
Sustaining Members:	Fees on application

Membership subscriptions cover the period from 1 July to 30 June and members receive all publications. Members may also choose to receive the Australian Journal of Marine and Freshwater Research, the Australian Journal of Zoology and/or the Australian Journal of Botany at reduced rates. The subscription period for each journal is the calendar year following the year in which the subscription is paid.

Enquiries relating to membership should be directed to:

Mrs M. Hart
Treasurer/Membership Officer ASL
22 Netherby Avenue
Mulgrave Vic. 3170

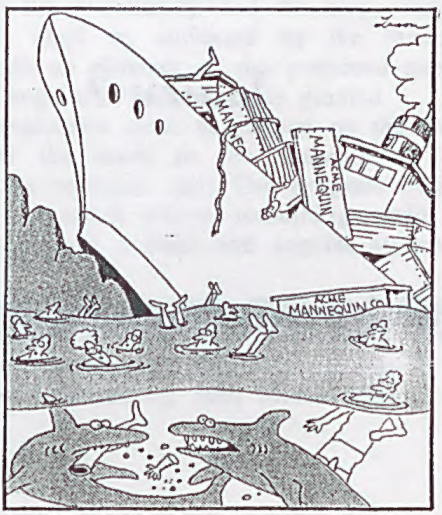
EDITORIAL

Not many things emerge from the Christmas-New Year break in a slimmer version than before, but our first Newsletter for 1988 is one of them. We still need more contributions, so start writing now for the May issue. The May Newsletter will be produced after the Townsville Congress as a special "Congress Issue". Last minute items can be handed to me at the conference, but please send general items in by the April 15 th deadline so that we might have less of a last minute rush.

The Editorship of this Newsletter is just about to recieve a 50% reduction with the imminent departure of Leon Barmuta to a postdoctoral position at the University of California at Santa Barbera (see State and Territory Affairs for more details). Leons' distinctive style has made the Newsletter fun to produce (and read we hope!), and we are hoping that enough has rubbed off on us to keep it up in his absence.

Good luck and best wishes with your US project and travels Leon .....
we haven't so much lost an editor but gained an international correspondent.....!!

As the Townsville Congress and AGM approaches now is the time to send off your registration forms and abstracts, to harass students to apply for ASL travel awards, and to gather your thoughts regarding matters such as the re-structuring of ASL Executive and the venue of the 1990 Congress - we can't leave it all to Max Finlayson !



"What is this? ... Some kind of cruel hoax?"

ASL CONGRESSES

1988

May 13 - 15th, Townsville

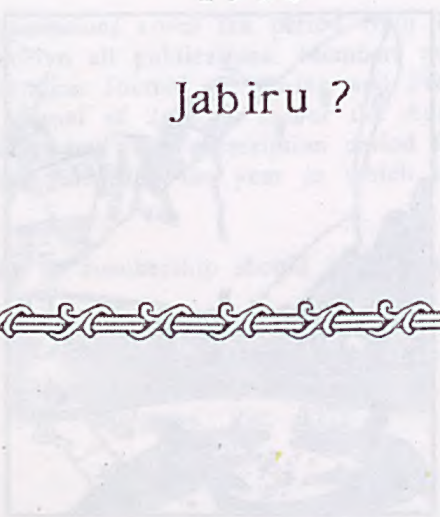
(Send in your registration forms and abstracts NOW)

1989

April 28 - 30th, Canberra

1990

Jabiru ?



RULES FOR STUDENT TRAVEL AWARDS

Assistance by ASL for Limnology Research Students to Present Research Results at the Annual Congress:

Applications are invited from limnology research students for assistance in meeting the expenses associated with attendance and presentation of a paper on their work at the 27th Annual Congress of the Australian Society for Limnology to be held on Magnetic Island near Townsville, Qld, on May 13-15, 1988. The purpose of this assistance is to bring the results of significant limnological research in Australia to the attention of those who can make use of it. It is also aimed at encouraging students to present the results of their work in public. The following rules apply to this assistance:

1. Assistance shall be granted on the recommendation of a panel of three appointed by the Society.
2. A maximum of five awards to a maximum total of $1000, depending on the location of the student in relation to the congress venue, will be made each year.
3. Applicants must be full-time postgraduate students at any Australian University, College of Advanced Education or Institute of Technology. There is no age limitation. Applicants must be current financial members of the Australian Society for Limnology.
4. Applications will be invited from students who are carrying out fundamental or applied research in any branch of limnology for the purpose of a higher degree.
5. Applications shall include a written statement of no more than 2000 words describing the research currently under study, its significance to the community and the stage that has been reached. This statement must be endorsed by the Student's Supervisor. It will also include an abstract of the proposed paper which would be given at the Congress if assistance is granted.
6. Award of assistance shall be judged on the following criteria: (i) Significance of the work to the community. (ii) Originality and soundness of the research. (iii) The progress made and whether the stage has been reached where something useful can be presented. (iv) Ability to present a clear and concise statement of the research study.
7. Applications and submissions must be lodged with Dr Richard Marchant, Museum of Victoria, 71 Victotia Crescent, Abbotsford, 3067, by the 1st of March 1988. The students to whom assistance is granted will be informed by 30th March 1988.

Jolly Award Nominations

The Jolly Award commemorates Hilary Jolly, a foundation member of ASL, and is presented to a person who, in the opinion of the Society, has made a outstanding contribution to Australian limnology. Financial members of ASL are now invited to nominate persons for the 1988 Jolly Award on forms enclosed with this Newsletter. Previous Jolly Award recipients are given below.

Jolly Award Recipients

I.A Bayly	1975	
W.D. Williams	1977	
J.S. Lake	1978	(Posthumous Award)
P.A. Tyler	1979	
P.S. Lake	1980	
J.T.O. Kirk	1981	
B.T. Hart	1982	
H.B.N. Hynes	1984	

LETTERS

ASL AS A NATIONAL ORGANISATION

Max Finlayson ARRRI, Jabiru

I am rather perplexed at a reference to Townsville as "far flung" on p.5 of the last Newsletter. The Macquarie Dictionary defines "far-flung" as flung or extending over a great distance e.g. a far-flung battle line. As a resident of the Top End of Australia, a region that is somewhat closer to the populated regions of the world than most parts of Australia, I am prompted to ask - far flung from what? If the answer is Melbourne or Sydney, let alone Perth, Adelaide or (post-Joh) even Brisbane, then I would suggest that perhaps we would be better off if we were flung even further afield. That is, further away from the ice-bound brains that don't realise that Australia does not stop at the Brisbane line (a concept out of WWII). To assist in melting the ice why not take up the offer made, in Albury, by Bob Fry to hold the 1990 Congress in Darwin/Jabiru. Such a venture would not only enable those from "down south" (that includes the west) to travel across Australia, but would enable many researchers to familiarise themselves with a water management question that is a big issue in Australia (i.e. disposal of water from uranium mines). This is an area that has already experienced the "vague platitudes and partisan group therapy etc....." (Leon Barmuta, p.8, ASL Newsletter 25 No. 4) currently going on under the auspices of AWRAC. Furthermore, it would offer a prime opportunity for ecologists to explain to the miners, engineers and 'regulators' "....why a knowledge of the ecology of aquatic systems is desirable or important." (Jenny Davis, p.11, ASL Newsletter 25 No. 4) - remember, that in this instance the uranium miners pay a levy that is equivalent (estimated) to 75% of the annual cost of running the OSS.

I can almost hear the moans of financially-starved ASL members from the "deep south", but please, just for a moment, stop to consider the following. ASL is a national organisation that is attempting to foster its' image as a high profile and relevant research oriented organisation. Can it really do this if it ignores one part of the nation as well as an institute that already has a large and applied water research programme. The cost of funding research at this Institute was highlighted by Ian Campbell at Albury - if you unconditionally accepted his analysis then I would suggest you should immediately opt for an opportunity to come and see for yourself. I realise too well that some people won't be able to attend (I've only been to 4 meetings myself in 10 years), but then again, do we hold Congresses to allow all the same old mob to attend, or do we hold them to foster the advancement of limnology

throughout Australia? A further excuse that Townsville is already a northern location and has the Burdekin Dam issue (?) can politely be dismissed as buffalo manure (have a look at your atlas, or better still your road map).

In conclusion, a Congress in the Top End would offer you the opportunity to visit an already established laboratory undertaking water research, to debate the perceived failure of past limnological work as a management prescription for current problems, and to judge alternate strategies, to actually visit an operating uranium mine, to enjoy some of the most spectacular wetlands in Australia, to get some real facts about the Kakadu World Heritage Listing, and to enjoy the sunshine and hospitality of "far flung" Australia. We could also organise a pre-congress symposium (one-day) specifically on the water related management problems in this often talked about, but little understood part of Australia. Such a meeting would of necessity include the views of the engineers, etc., who make the wheels of industry turn and who are not reluctant to tell it as they see it (as some ASL members know and many are finding out). In other words, we would like to offer ASL the opportunity to broaden its geographic horizons in the delights of the World Heritage Kakadu. Bob Fry has made an offer, it is up to ASL to determine if it wants to take it up.

STATE AND TERRITORY AFFAIRS

Northern Territory

Correspondent: Max Finlayson, Alligator River Region Research Institute, Post Office, Jabiru, NT, 5796

1. General News - Maryanne McKaige is paddling around in crocodile infested water at the head of the South Alligator River. Fortunately for Maryanne the crocs are the freshwater type *Crocodylus johnstoni* that, interestingly, obtain about 40% of their food from the terrestrial environment.

Whether or not you are interested, I perplexedly report that the shirt-button saga continues. I can now confidently report that they are not to be found in Nhulunbuy (Gove), and further, that marine fishing is more fun and the fish tastier than the freshwater version. In 1982 the average time taken to catch a barramundi was 6-7 hours; call that fun!

The Wet season appears to be upon us up here and the ARRRI aquatic biology teams have cranked themselves up and are rearing to go. Chris Humphrey has harnessed together his mob to tackle the biological monitoring programme, whilst headbutt Holdway (affectionately known as Animal) has the toxicity group fit to kill. Meanwhile. back in the laboratory, the Plant Ecology team dreams of long, hot, wet, sticky, mossie-plagued, leech-sucked and schistosome-itched days out on the floodplains as they shuffle numbers and words in an attempt to prove their worth by compiling big mobs (or is it mega mobs) of reports and journal articles.

The ARRRI has recently appointed two new Biology staff members - Isabell von Oertzen in Plant Ecology amd Michael Mannion in Aquatic Biology (Toxicity). Patrick McBride has transferred to the Supervisory and Assessment branch of OSS and is based in Sydney, whilst Bruce Bailey has departed to take up residence as the first male "house spouse" in the ACIL Australian overseas aid project in Kupang, West Timor.

2. Environmental Chemistry (ARRRI) - Barry Noller is currently in the midst of writing up several studies conducted over the last 7 years and dealing mainly with environmental chemistry of heavy metals, nutrients and other major ions in waters from the Magela Creek system, Alligator Rivers region. Included are studies on Magela Creek system water quality, chemical processes in creek and floodplain waters, rain chemistry, water chemistry of fish kills and chemical processes of significant elements in creek and mine

waters as they relate to discharge of mine waters. A number of collaborative projects have also been conducted with Biology and other groups at the Research Institute, Jabiru.

The Analytical Chemistry Laboratory provides the analytical back-up to the Aquatic Toxicity Group and other biological research activities at Jabiru. The OSS has recently taken a quarter share in a new instrument, an inductively coupled plasma-mass spectrometry (ICP-MS) to be located at Lucas Heights, Sydney. Access to this instrument provides rapid multi-element analytical capability and will alleviate the ever-present sample back-log and slow analytical turn-around time.

NEW SOUTH WALES

Correspondent: Rod Oliver, MDFRC, PO Box 921, Albury NSW 2640. and Brian Timms, Avondale College, PO Box 19, Cooranbong NSW 2265.

Brian Timms has responded to our plea for information from NSW and has volunteered to keep us informed of limnological events occurring north of Sydney. In the little time that Brian has to spare these days, he is investigating the regionalisation of salt lake faunas by long-term piece-meal studies of two rather isolated semi-permanent lakes - L. Jindabyne on the Monaro Tableland and L. Wyara in southwest Queensland. There are rumours that Brian is also planning an assault on Tassie sand dune lakes, but more of that at a later date.

TASMANIA

Correspondent: Pierre Horwitz, Centre for Environmental Studies, University of Tasmania, GPO Box 252C, Hobart TAS. 7001

Studies on the meromictic lakes of the Gordon River have taken a new twist with the closing of the power station at Strathgordon while a third turbine is fitted. This will see the river return to a natural, unregulated flow regime for the first time since the meromictic lakes were discovered and will enable testing the theories of genesis and maintenance of meromixis by an intrusive underflow of salt from Macquarie Harbour. The monitoring is being

carried out by Peter Tyler and associates with grants from ARGS and National Parks.

On the phycological front, Peter Tyler is struggling to complete an introductory text on the study of Australian freshwater algae. Studies of rare or new Australian freshwater algae, the grist of such texts, have received a boost with a grant of $186 000 to Gordon Leedale to employ a 5-year postdoctoral fellow to continue the joint Leeds/Tasmania study of the ultrastructure of exciting Australian algae.

And at last here's the good oil on the Inland Fisheries Commission (IFC), much maligned in the state for having the audacity to send their employees into the field when threatened by ASL gossipists. There's a plethora of projects going on; Wayne Fulton is up to his ears in fish and invertebrates conducting and supervising work including a study of heavy metal pollution in the King River and the effects on the drifting invertebrates of any amelioration of the pollution planned by the Hydro-Electric Commission (HEC). Wayne's also conducting a study to test the effects of forestry activity on freshwater invertebrates in southern Tasmania (but, ironically, since his study area fell within the National Estate boundaries, it has reached a temporary impasse whilst the Helsham Inquiry continues). Wayne and Natalie Payuk are looking at the population genetics and abundances of whitebait species (mainly *Lovettia sealii* and *Galaxias maculatus*), funded by FIRTA. Andrew Sanger has arrived in Hobart to a tumultuous welcome (from trout) to examine the statuses of threatened/endangered species of freshwater fish, funded by WWF (which doesn't stand for Wayne Wildlife Fulton). Stuart Chilcott is SSST (Still Systematically Surbering Tasmania). Peter Davies had a hectic 1987 after returning from the Mardi Gras in South America to head projects on the toxicological effects of pesticides on freshwater life (with Laurie Cook, AWRAC) and heavy metal pollution in trout (HEC). Peter and Stephanie Kalish are investigating the effluent from (and funded by) the Australian Newsprint Mills Boyer plant on the Derwent River.

Work in the Southwest Tasmania World Heritage Area is underway again with some members of the University and IFC fraternity focusing on caddis and native fishes, but more importantly, syncarids, crayfish and Tall Ships.

Lastly, very happy news has filtered through from the Zoology Department Tea Cup: Paul Humphries has had a well-earned acceptance of his thesis and rumours are rife that he is happy and well and sunning himself on the banks of the Nile. Anybody knowing the whereabouts of Paul should contact their nearest ASL

rep. immediately.(Stop Press - Paul Humphries infroms us that he si actually in W.A., basking in the reflected glow of Neil (Loneragan) and cannot undrestand how the typographykle error saw meda.

Wouldn't bother mate, you can't see the naughty bits for the midges.

Nudist club's plans bared

Forrestdale could become the latest meeting place for Perth's nudists.

The Apollo Nudist Club has applied to establish a club in Gibbs Road, Forrestdale.

The group plans to clear part of a 12-hectare property and build a clubhouse and amenities block and provide a grassed area for camp sites.

In the long term the club would like to have a sports area, swimming pool, spa and sauna and several small chalet-type buildings.

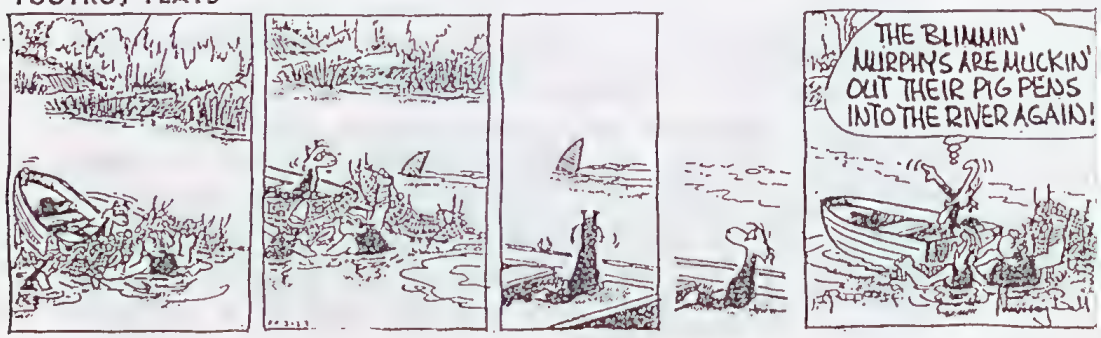
The Armadale City Council has asked the club for a more detailed site plan before it reconsiders the application.

The council will also be seeking comments from surrounding landowners.

The president of the Apollo Club was not available for comment.

Forrestdale Lake, near Perth, has had a history of midge problems. Large swarms of midges from the lake during summer months have caused extreme discomfort to the residents of the nearby suburb of Forrestdale. Despite the well publicised midge problem in the area, Perth's nudists obviously still view the lake (when possible) in a favourable light .....and after all, midges (Chironomidae) don't bite, and they can't be as abrasive as beach sand !!

FOOTROT FLATS



QUEENSLAND

Correspondent (South): Angela Arthington, AES, Griffith University, Nathan, 4111.

Limnology is alive and well in southern Queensland. Thanks are due to the author of the "Down South" section of Queensland in State and Territory Affairs, Issue 25(4), 1987, although certain persons are not too pleased to be called "Tilapia Kids"!

The AWRAC Centre for Catchment and In-stream Research (CCISR) in the Division of Australian Environmental Studies is well established in new laboratories and offices and is buzzing with research activity. Projects and people involved are briefly described below:

The core research program of CCISR has four parts focused on the origin, transport, chemo-dynamics, fate and ecological impacts of agricultural chemicals in freshwater ecosystems. Professor Calvin Rose (Deputy Director), Associate Professor Des Connell, Jane Hughes and Angela Arthington (Director) run these studies.

Newcomers to CCISR include Manon Griffiths, B.Sc. Honours (AES), research assistant to Jane and Angela; Manon and Jane Hughes are presently screening various stream invertebrates for their susceptibility to pesticides and surveying the genetic variability of tolerance. Manon is the daughter of Professor Griffiths from James Cook University; limnology runs in this family. Jane is also studying the effects of pollutants on genotype frequencies in populations of marine gastropods and mud crabs.

Soon three Research Fellows will join the core research team, one hailing from the west - Brad Pusey starts the ecological studies in April 1988. Ross Markwell, PhD, will work with Des Connell, and Dr Hossein Ghadiri from Iran and Doug Ward, AES are assisting Professor Rose with modelling the sediment/pesticide relationship at various scales. A rainfall simulator has been the focus of much muddy, wet activity over the summer months by an AWRAC summer student, Mark Kidd, and Patricia Granata from AES.

Dr Darryl Hawker, Dr Albert Gabric, Dr Peter Vowles and Greg Miller of AES are involved in Des Connell's CCISR research, especially sediment-interstitial water and water-biota partitioning processes. Des has three MST grants this year studying the properties of pollutants influencing their bioconcentration by marine organisms and modelling the bioconcentration of biodegradable lipophilic pollutants by aquatic organisms.

AWRAC is funding Angela's three year (well almost) research programme on the ecological impacts of introduced tilapia in Queensland. Dr Peter Mather has been working on the population genetics of tilapias but has recently taken up a Lectureship at the Queensland Institute of Technology in Brisbane; he will continue as

an associate researcher. David Bluhdorn (B.Sc. Hons.) manages the ecological side and this summer is assisted by an AWRAC summer student, John Delaney, doing exciting work on the match between morphological and genetic features of tilapia species and strains. David has been involved in tilapia work for several years and attended the second International Symposium on Tilapia in Aquaculture held in Bangkok in 1987. Tilapia has turned up in several new sites in north Queensland and the team will be working around Townsville and Cairns after the May ASL meeting. Watch out for the Tilapia papers at ASL. Griffith University recently provided $5000 to survey tilapia populations in Western Australia. Dr Norm Milward of James Cook University is an associate researcher on the tilapia project.

The Queensland Water Resources Commission is funding the 3-year environmental study of the Bjelke-Petersen Dam. Angela, Diane Conrick (of Bulimba Creek fame), Bryan Bycroft (returned to the limnology fold from brewery quality control) and Debbie Harrison (ecologist and speleologist, AES) are studying the water quality and ecological effects of the dam and the in-stream flow and habitat requirements of fish. A super laboratory has been established at the dam site and Diane and Bryan live in nearby Murgon with their two sons. Mr Ian Jowett from the Ministry of Agriculture and Fisheries, Christchurch, New Zealand, will join the team in June 1988 to assist in modelling the in-stream flow requirements of stream fishes.

CCISR has a contract to study the aquatic systems of the Tully-Millstream Hydroelectricity Scheme and Angela spent a week there with assistant Rob Wager (Zoology B.Sc. University of Queensland). En route they visited the Atherton lakes Eacham and Barrine and tried to see the unique Lake Eacham rainbow fish, believed to be extinct due to introduced mouth almighty and other translocated native fish.

CCISR ran a seminar on "Future Directions in Water Research" in December 1987 to meet representatives of the water industry and discuss water research priorities for Queensland. Proceedings will be published as the Centre's first Working Paper.

WESTERN AUSTRALIA

Correspondents: Jane Chambers (Botany), Andrew Storey (Zoology), University of Western Australia, and Jenny Davis., Murdoch University.

Professor John Dodge from Royal Holloway and Bedford New College, University of London, visited Botany UWA between 9-16

December 1987 on his way home from working with Shirley Jefferies (CSIRO Hobart) on dinoflagellates. He discussed various limnological projects and presented a seminar.

Michael Melsom will be starting an Honours project this year with Associate Professor Arthur McComb and Dr Rod Lukatelich on 'Uptake of manganese by wetland plants'.

A collaborative project between EPA and CWR (Botany) on the water quality of Oyster Harbour and Princess Royal Harbour at Albany started recently and is being coordinated by Rod Lukatelich. The project is also concerned with the loss of seagrass and the increase in macroalgae in these water bodies.

Stuart Bunn (ex Zoology, UWA) has just finished his postdoc with Noel Hynes at Waterloo and has a lecturing post in Ecology at the School of Australian Environmental Studies in Brisbane.

Also heading east is Brad Pusey, who has finished his PhD on the life history strategies of native fish or wetlands of south-west W.A. He's taken up a research fellowship with Angela Arthington in Brisbane.

Louis Lebel, who completed Honours at UWA Zoology in 1987, has a Commonwealth Scholarship for a PhD in aquatic research at UWA - he starts this year.

A study of the Capel wetlands is being conducted by Don Edwards and Dave Cale. It is a 5 year multi-disciplinary study on the development of water-filled mine pits as refugia for water fowl. This study is being coordinated by Jane Chambers and several members of the RAOU. A preliminary survey of the aquatic fauna was submitted late last year.

Peter Morrison has just about submitted his PhD on the reproductive biology of two *Ploto* catfish spp.(don't ask me about my thesis!)

Chris Burke has started a PhD on the limnology of hypersaline lakes in relation to stromatolites with Brenton Knott as his supervisor.

ARL have submitted a report to the WAWA on the composition of different taxa levels in biological monitoring.

Andrew Storey (and the girls) are running two small projects: (a) using the freshwater mussel *Westralunio carteri* as a bioaccumulator of heavy metals; (b) the population genetics and viability of *Galaxias occidentalis* (Western minnow) isolated above and below gauging stations and dams.

News on the Murdoch front includes the imminent departure of Leon (on February 24) to the US to work with Scott Cooper and John Melack at the Department of Biological Sciences, University of California, Santa Barbera, on the effects of experimental acidification on aquatic ecosystems in the Sierra Nevada. However, while the

Stream and Wetland Ecology Group will unfortunately be Leon-less, new bodies are continuing to arrive. Natalie Hill (BSc Auckland) is starting an Honours project on the effects of the pesticide Abate (used to control Chironomids) on the non-target invertebrate fauna of Perth wetlands, and Mark Lund has recieved a Murdoch Postgraduate Research Award to undertake a PhD on an as yet to be decided freshwater topic. Steve Rolls is starting on an honours project which will examine the potential usefulness of biotic indices for the monitoring of water quality in wetlands near Perth.

News from the Fisheries Group at Murdoch includes the recent return of Pancho Neira (larval fish taxonomist and ecologist) from a visit home to Chile, and the arrival of Paul Humphries, Laurie Laurensen, and Glen Hyndes to work on a variety of projects associated with the fish communities of the Wilson Inlet, near Albany, in the southwest of W.A..

A workshop on the Biological Needs for Management of Metropolitan Wetlands was held in Perth at the John Tonkin Water Centre on November 25, 1987. The workshop was organised by Malcom Hollick of the Department of Civil Engineering, UWA, and sponsored by the Western Australian Water Resources Council. Thirty one people attended the full day workshop which was chaired by Arthur McComb. The aim of the workshop was to help define important areas of research which need to be addressed for the management of wetlands in the Perth region. In particular, the output from the workshop was to provide the recently established State Government Research Steering Committee and the Aquatic Ecosystems Subcommittee with guidance on research needs and priorities, and to provide researchers with an indication of the areas that would be most likely to receive support.

In the words of Malcolm Hollick, it was hoped that the workshop would "hasten the day when we not only have the will to protect wetlands, but also the ability"

SOUTH AUSTRALIA

Correspondent: Lance Lloyd, Zoology Department, University of Adelaide, GPO Box 498, Adelaide 5001.

State Affairs News is sparse from the great south state this quarter but here is what I have heard just recently. Anybody in SA with news for the next newsletter can just give me (Lance) a call (228 5566).

Andrew Boulton is coming to Adelaide to take up a short term lectureship with the Department of Zoology. We haven't seen him yet but his name is on a mail box, so he must be here soon. Hugh Jones was reported in the last State Affairs to be considering a PhD

in Adelaide but has decided to go back to the family farm at Warren, NSW. I hope Hugh keeps his interest in things limnological and that we may see him from time to time. Good luck, Hugh.

Bill Williams is presently in the USA and other OS parts - so all is quiet on this front. We should all expect some news in the next edition of State Affairs.

Mike Geddes is now Chairman of the Zoology Department. Mike came out with the snag crew (Lance and co.) and saw the Murray for the first time (limnologically). It was a "typical" trip with a dust storm, huge waves going upstream, thick smoke wafting from a bushfire over the River (we found out later, from many kilometres away) and 45 degree heat!!!. Shirley Balla came along to help with the snag work while she was on holiday from the West. It was some trip - Mike remarked that if this was normal for the Murray, he might not do any more work on the River!!!

Keith Walker has (together with Tom MacMahon, University of Melbourne) just received another AWRAC grant. This time Tom and Keith will be looking at "Hydrology and Instream Flows in the River Murray". Keith will be busy this year with this and the other AWRAC projects as well as two or three honours students. Anne Southgate and Ross Corkrey both have AWRAC studentships with Keith and will proceed to be honours students when the work is finished. Anne has been examining the biology of floodplain plants in relation to groundwater salinity and Ross has been working on a statistical analysis of river height data at Loch 3 - both are doing a great job!

Jim Puckridge is off again up north to Coopers Creek and Coongie Lakes to continue his work on use of floodplains by fish. Jim and others will be going up several more times between now and early 1989 and is looking for volunteers (all expenses paid - that is they drive you up there and feed you) to join them. The Cooper field trips are usually of two weeks and camping is the order of the day. Weather conditions can be extreme (apparently 45 C is not so unusual in the north-east of SA) but the scenery is spectacular. Contact Jim directly at the Department of Zoology, University of Adelaide (ph. 08 228 5566) for details of dates and arrangements.

Brendan Atkins and John Gray (Ecologic; formerly of Department of Zoology, Adelaide University) are undertaking a study (in collaboration with local experts) of the wetlands of the south-east of SA. It is an ecological study which aims to survey and describe the invertebrates, fish, waterbirds, reptiles and vegetation of the wetlands. The main aim of the work (commissioned by the Department of Environment and Planning, Adelaide) is to identify sites suitable for wetland management (water allocations and rehabilitation). Survey techniques have been developed and applied

to this study. Some 80 taxa of invertebrates have been collected from some 24 wetlands of various types.

Jane Roberts is now with the CSIRO at Deniliquin working on the effects of ducks on rice crops. Russell Shiel has moved to Albury to work with MDFRC on zooplankton of the Murray. The NSW gossiper should collar these people for some info on their work at these new (and exotic?) locations!

VICTORIA

-what is happening in Victoria ?

- have the Bicentennial celebrations been too much for our limnological correspondents ?

The only news that has trickled westward is that Ros St Clair has finally seen the light and forsaken Melbourne weather for sunny Townsville, and Andrew Boulton is halfway home again with his move to Adelaide.

The last thing a fly ever sees

BOOK REVIEWS

WATER QUALITY MANAGEMENT - Freshwater Ecotoxocity in Australia

(Ed. B.T. Hart) 1986 Water Studies Centre, Chisholm Institute of Technology, Melbourne. 140 pp. Cost: A$20 (including postage); A$25 for overseas orders. Available from Chisholm Institute of Technology, 900 Dandenong Road, Caulfield East, Victoria 3145 Australia.

Reviewed by Douglas A. Holdway, Alligator Rivers Region Research Institute, Office of the Supervising Scientist, Jabiru East, Northern Territory 5796 Australia.

This book comprises a collection of papers delivered at a symposium of water quality management which addressed "Freshwater Ecotoxicity in Australia". The stated objective was "to review past and present freshwater ecotoxicological testing in Australia, and to address the issues of how these data are used in developing criteria, the additional ecotoxicological data that will be needed in the future and the ability of the present programmes to supply the future needs". Certainly an ambitious programme and one which was only partially successful.

One of the strengths of this book is the presentation of a number of diverse and, in many cases, contrasting conceptual views of ecotoxicology through the eyes of a U.S. Environmental Protectin Agency scientist, an eminent Canadian environmental toxicologist, a distinguished British aquatic toxicologist now residing and working in Australia, and a number of notable Australian environmental scientists representing the Governments of Victoria, New South Wales, and the Commonwealth. Each of the seven 'conceptual' chapters (Chapters 1,2,8,9,10,11 and 12) presents an individual perspective of ecotoxicology which, when read concurrently, present the concepts and objectives of the science as a continuum ranging from molecular biology to advanced ecological modelling. It is extremely useful for both students and practicing aquatic toxicologists to be made aware of the differing goals under which ecotoxicological research is undertaken. These objectives range from attempting to predict field effects of effluent releases from biochemical changes within individual organisms, to monitoring for whole ecosystem effects by assessing energy flow and community structure and kinetics. The relative success of specific ecotoxicological research very much depends on the individual organisation or scientist's perception of its goal. These chapters alone make this book worth buying, particularly Chapters 2 and 11 which are exceptionally detailed and well written.

The two chapters (Chapters 3 and 4) that detail the results from two Australian Water Resources Council funded projects describe good pieces of research. The first (Chapter 3) investigates chemical speciation of copper as an abiotic modifying factor of toxicity to Australian freshwater shrimp (*Paratya australensis*). In a series of novel and elegant experiments the authors demonstrate that knowledge of metal speciation (and thus water characterisation) is absolutely essential for predicting the toxic impact of metals on an aquatic ecosystem. Chapter 4 concerns itself with a detailed comparison of some fifteen species of Australian freshwater fish and invertebrates using copper sulphate and zinc as standard toxicants. Although not especially innovative or novel, this work provides the first comparative lethal data for Australian aquatic species (including introduced rainbow trout) allowing for the comparison of data from native Australian species with the voluminous North American and European data sets.

Chapter 5 also provides comparative acute toxicity data utilising three species of native freshwater organisms and introduced rainbow trout exposed to seven different metals (copper, zinc, lead, mercury, cadmium, nickel and chromium). However, literature data referred to is of very limited value since there is no reference list given and the discussion is extremely thin.

Chapters 6 and 7 deal with the use of algae and bacteria for toxicity and mutogenicity testing respectively. Each author is obviously a partisan supporter of his respective assay and organism, but personally I found that neither of these chapters provided more than basic flag-waving. The same is true of the platitudinous Chapter 13 ('Chapter' is somewhat of a euphemism given that it consists of an extremely brief abstract only) which makes no contribution to the science of environmental toxicology and which contains some unsubstantiated comments that fundamentally contradict accepted ecotoxicological principles.

Chapter 14 (mislabelled in the index) deals with the use of the Microtox system from Beckman, which measures the changes in light output from the luminescent marine bacterium, *Photobacterium phosphorum*, as an indicator of relative toxicity. Although only an extended abstract (4 pages), the advantages, disadvantages, and potential modifications of this unique test system are nicely described.

The final section of this book lists a series of seven main research priorities which were put forward during a workshop conducted by the Water Studies Centre at the Chisholm Institute of Technology on 29 th November 1984 (the workshop immediately followed the symposium on which this book was based and included many of the symposium authors). These priorities are each

described in some detail and provide a very useful blueprint for future research directions in Australian ecotoxicology.

The word that best describes this book is uneven. The quality of both the science and the writing varied from the exceptional to the mundane. The same could be said with respect to the editing. For example, the title of the book "Freshwater Ecotoxicity in Australia" is incorrect terminology. Ecotoxicology is defined as "the inherent potential or capacity of a material to cause adverse effects to an ecosystem" (Fundamentals of Aquatic Toxicology, Rand and Petrocelli, 1985). Again, in the Introduction, the editor talks about the new field of ecotoxicity as "the study of the effects and fate of toxic chemicals in ecosystems". the correct term is 'ecotoxicology' (derived from the Greek oikos (home) + toxikon (poison) + logos (knowledge)) and the title should thus have been "Freshwater Ecotoxicology in Australia". The use of accurate terminology, particularly in a new field of science, is essential to ensure understanding and to avoid confusion. Although this is a minor point, it demonstrates a lack of attention to detail in the editing which is apparent in more than a few places throughout this book.

The style of editing used in this book is also questionable. I realise that the editor has included all of the contributions in order of their presentation, but I feel that by doing so he has reduced the value and quality of this book. It is an editor's prerogative (and responsibility) to exclude inferior material from publication and thereby augment and preserve the integrity of the quality science being expounded. Poorly written papers should have been returned for rewriting, while papers of questionable intellectual merit or incomplete papers should not have been incuded at all. In addition, the theoretical thrust of the book would have been greatly strengthened had all of the conceptual chapters been grouped together, regardless of the order in which they were presented at the symposium.

Overall, however, one must always judge a book based on all factors including price. For $20, this book is a steal. With all its faults, this publication contains some truly excellent science and is thus highly recommended to both students and scientists alike. The fact that the reader will have to use some selective judgement is an inconvenience, but does not alter the reality that this book is excellent value for money.

★ Pollution is cirrhosis of the river.

The Role of Particulate Matter in the Transport and Fate of Pollutants

(Ed. B.T. Hart) Water Studies Centre, Chisholm Institute of Technology, Melbourne, 200pp. 1986. Cost (including postage) $A20 in Australia, $A25 overseas. Available from: Water Studies Centre, CIT, East Caulfield 3145, Australia.

Reviewed by Rod Oliver, Murray-Darling Freshwater Research Centre, PO Box 921, Albury 2640, NSW.

This book is the outcome of a symposium held in 1983 as part of an ongoing series of symposia run by the Water Studies Centre at Chisholm Institute of Technology to address contemporary issues in water quality management. The objective of the symposium was to review the present knowledge both in Australia and overseas, of the role of particulate matter in the transport of pollutants. This subject is very pertinent to Australian inland waters which are noted for their high turbidities and it is disappointing that publication of the proceedings was delayed for so long.

The papers making up the eight chapters in the book range enormously in size and content with two being abstracts only. However, a core of excellent chapters dealing with the major processes involved in the transport of pollutants by particulate matter ensures that the objectives of the symposium are successfully met.

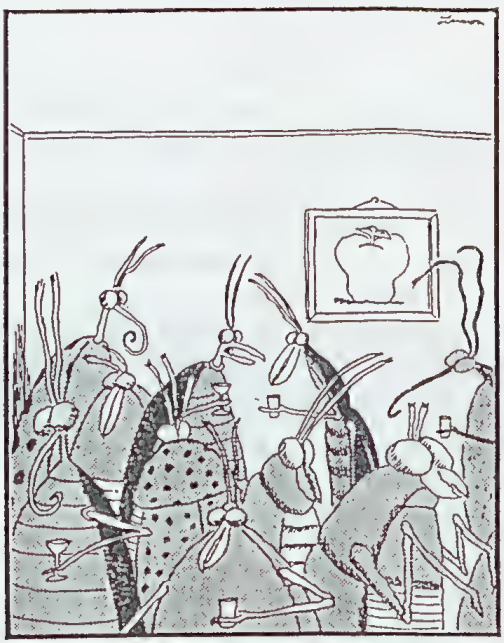
The first two papers in the volume are by Dr R. Allan, Chief of the Environmental Contaminants Division of the Canadian National Water Research Institute who was the invited keynote speaker at the symposium. The two papers are very long, together making up half the content of the book, and in parts I found the text disjointed and unclear with a number of small but annoying misprints which had slipped past the editor. As would be expected, however, the two papers contain a wealth of information and for the stalwart it is well worth the effort required to read them. The papers include a number of case studies describing pollution problems in the Laurentian Great Lakes area of Canada which have resulted from contamination with heavy metals and toxic organic wastes. The examples vividly demonstrate the role of particulate matter in the transport of pollutants and outline many of the problems faced by researchers attempting to gain an understanding of the processes involved. In this context a number of interesting methods are described.

The following six chapters of the volume are more focussed in their content and being presented by Australian authors provide an insight into the work currently being undertaken in this country. The chapters address in turn the transportation and deposition of

particulate material, the composition and surface properties of suspended particulate matter and the effects of particle-associated contaminants on the biological components of the environment, including the use of organisms as biological monitors. Most of these papers are well written and provide not only a useful introduction to the present state of the art but also report on research results from Australian environments. In particular, the paper by R. Beckett on the surface properties of particulate matter and that by K. Walker on the use of freshwater mussels in biomonitoring contain excellent expositions on the principles underlying these fields of research.

Several of the authors reiterate the importance of establishing the nexus between those physico-chemical principles determining the association of pollutants with particulate matter and the availability of these pollutants for biological uptake. As evidenced by the papers in this volume, the connection is still poorly understood, even for the most intensely studied pollutants. Undoubtedly the expectation of a straightforward relationship is far too simplistic but the effects of some pollutants on higher trophic levels are clear cut and the need for reliable indicators of the incorporation of pollutants into food chains is still imperative.

In summary, the volume is a useful attribute to those interested in this field of research and would provide a reasonable starting place for those with some limnological background who would like to find out more about it. The price certainly makes it good value.



"Think about it, Ed. ... The class Insecta contains 26 orders, almost 1,000 families, and over 750,000 described species — but I can't shake the feeling we're all just a bunch of bugs."

INLAND WATERS OF NEW ZEALAND

Ed. A.B.Viner (1987).

Addendum to previous review by Ian Bayly, Zoology Department, Monash University, Clayton, Victoria, 3168.

My review published in the Australian Society for Limnology Newsletter Vol. 25 No. 3 (August 1987) was based on an "advanced" copy of this book which contains a number of obvious production faults. Since I was given to understand that most of these faults would be eliminated when the book was officially and generally released, I confined myself in my review to the content and scholarship of the book. However, when my own copy of the book (part of the general release) arrived, I found that most of the production faults present in the advanced copy were still present. I therefore sent an addition to my review to the Editor of the ASL Newsletter, but it arrived too late for inclusion. Since I think it important to set the record straight, I would ask readers to note the following addition:

"Unfortunately the quality of the printing is disappointing. The intensity or heaviness of printing varies from page to page, and the quality of several of the half-tone plates is definitely substandard (I happen to know that the originals of the offending plates were good). So, all in all, the standards of the publisher (DSIR Science Information Publishing Centre) and printer fall far short of those of the authors and editor. What a pity!"

Australian Water Research Advisory Council

National Water Research Program

1988

Proposals are now called for for the Partnership Research Program, Scientific Merit Scheme, National Priorities Program, Research Fellowship Scheme, and Water Research Achievement Awards. The closing date for all of the above is 27 th April 1988.

Furthur information from Dr Michele Barson (062) 72 3575 and Ms Joan Chapman (062) 72 5838.

NEW BOOKS

Fauna of Australia

General Introduction : The Fauna of Australia is a project of the Bureau of Flora and Fauna which will provide an encyclopaedic reference to all known terrestrial and aquatic animals of Australia.

The Fauna will present, in ten volumes of approximately 800 pages each, a comprehensive account of the current knowledge of the biology, taxonomy, evolution and history of discovery of the animals which live in Australia.

Each volume of the Fauna will consist of the two major sections - general articles and descriptions of the animal groups, usually at the level of the family. Included in each group is information on the history of discovery, morphology and physiology, natural history, biogeography, phylogeny, fossil record and economic significance.

Such articles will indicate how animals at both the individual and the population level, respond to the special rigours of the Australian terrestrial and freshwater environments. Illustrated keys, at least to family level, will be included in all volumes.

Contents : Volume 1A : General articles Foreword Contributors Table of contents 1. Evolution of Australian Environments 2. The Australian Marine Environment 3. Major Components and Distribution of Marine Fauna 4. The Present Australian Environment - Terrestrial and Freshwater 5. Major Components and Distribution of the Terrestrial Fauna 6. Evolution and Radiation of the Terrestrial Fauna 7. Major Components and Distribution of Freshwater Fauna 8. Origins and Adaptations of the Fauna of Australian Inland Waters 9. The Discovery of the Australian Fauna and the Establishment of Collections 10. Human Exploitation and Introductions to the Australian Fauna 11. Cultural Values, Conservation and Management Legislation 12. Classification and Nomenclature (including Modern Character Sets) 13. The Animal Kingdom in Australia Index List of volumes, Fauna of Australia

Five ways to order Fauna of Australia 1. Over-the-counter from the Commonwealth Government Bookshops 2. Mail Order Sales 3. AGPS Phone Shop 008-026148 (toll free) on line 24 hours, 7 days a week. Canberra customers call 95 4861 4. Vax-an-order (062) 95 7295 5. Telex AA62013 Volume 1A, Cat. No. 87 0967 9 Casebound $44.95

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A well known Australian limnologist (who will remain nameless) has recommended this book and, in particular, chapters 7

and 8 to all ASL members. These chapters are considered to represent "superb expositions of the present state of our knowledge concerning the distribution and abundance of freshwater and, indeed, athalassic fauna in Australia". Volume 1A will be reviewed in a later edition of the Newsletter (we hope) but in the interim the above said limnologist suggests that at $44.95 this book is also a steal.

THE NATURAL HISTORY OF LAKES

Cambridge University Press

Mary J. Burgis City of London Polytechnic and Pat Morris, Royal Holloway and Bedford New College, University of London

The Natural History of Lakes provides a fully-illustrated and clearly written introduction to the fascinating world of lakes, which are shown to be not only beautiful scenic attractions, but also thriving communities. Despite their distinct shorelines, lakes are not isolated but constantly interact with their surroundings; their many subtle variations have profound effects on the wildlife they support.

The Natural History of Lakes explains the properties of lake water, the formation of lakes and their dramatic seasonal patterns, and the plants and animals that they support. The remarkable variety of the world's lakes is then described: from the frozen lakes of Antarctica to dramatic high-altitude lakes such as Titicaca. Having provided a picture of lakes as dynamic but delicate habitats, the authors finally discuss the crucial questions of conservation. The text is richly illustrated with colour photographs, drawings and diagrams.. The authors' extensive travels and research give a unique combination of clear detail and broad coverage.

Naturalists, ornithologists, anglers, holiday-makers and anyone wanting a greater understanding of lakes will be delighted by this book.

1987, 246 x 189 mm, 218 pp., 100 half-tones, 75 line drawings, 16 colour pages. £17.50 sterling net.

Contents: Preface; lakes in the landscape; lake water, lake communities: lakes and the seasons; polar and mountain lakes; the deepest lakes; shallow lakes; saline and soda lakes; man-made lakes; the use and abuse of lakes; the conservation of lakes; further reading; sources of information used in tables and figures.

Order from: Customer Services Department, Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU.

★ Fjords : Bodies of stjll water between steep cljffs in Njorway.

THESIS ABSTRACTS

1. The systematics and zoogeography of the freshwater crayfish genus *Engaeus* Erichson (Decapoda; Parastacidae) by Pierre Horwitz, B.Sc. (Hons) (WA), Zoology Department, University of Tasmania, Hobart, Tasmania.

The taxonomy of the freshwater crayfish genus *Engaeus* has been investigated using the techniques of allozyme electrophoresis, multivariate morphometrics and classical taxonomy. The use of these three techniques allows an investigation of both genetic and morphological variation in the genus. It is proposed to synonymise 4 of the previously described species and to erect 14 new species, taking the total number of species in the genus to 34. Based on morphological characters, a partial key to the genera of the Parastacidae and a key to the species in the genus *Engaeus* is given. The description of each species includes a diagnosis, a description of an adult male and an adult female, a discussin of the morphological variation and comments on aspects of the species' life history.

The genealogical relationships of closely related species have been determined from the distance data presented in the electrophoresis section. These relationships are supported with an analysis of ancestral and derived morphological character states, to result in a dendrogram depicting the phylogenetic relationships of the species in *Engaeus* and its allied genera. This dendrogram is compared to previous phylogenies proposed for the parastacids.

In general terms the distributin of *Engaeus* can be described as conforming to the 'Bassian biogeographical region' in south-eastern Australia. Here it has been found to exhibit a high degree of regional endemism; for instance of the 34 species only two species occur in both Victoria and Tasmania. In Victoria, 20 endemic species have been recorded. A trend of high diversity and high endemism of the crayfish fauna has been found in highland regions, whilst low levels of both diversity and endemism are recorded for lowland regions. This is attributed to an increase in the number of available habitats in topographically diverse areas of the State. The situation in Tasmania, where 12 species are endemic, is somewhat more difficult to interpret. It seems that the western portion of the island, with its more predictable climatic conditions, can be characterised by broad distributional ranges of a few species, whilst the heterogeneous north-east of the island exhibits many species with reduced, often restricted, geographical ranges.

Four modes of speciation are proposed. The fluctuating sea-levels in the Bass Strait region which accompanied successive glacial and interglacial periods are suggested as the major mechanism in the establishment of geographical barriers between populations.

An absence in the literature of similar studies (on diverse monophyletic groups in the same area) prevents the examination of zoogeographical concordance. Further research is proposed to test the ideas presented in this thesis.

2. Life History Strategies of Diadromous and Landlocked Populations of the Spotted Galaxias, *Galaxias truttaceus* Valenciennes in Tasmania, by Paul Humphries, University of Tasmania.

A field study was carried out over a period of 20 months to investigate variation in life history traits of the spotted galaxias, *Galaxias truttaceus*. A comparison was made between two landlocked lacustrine populations from the Central Plateau of Tasmania and two riverine diadromous populations from the Tasman Peninsula in south-east Tasmania.

Univariate and multivariate analyses of serial counts and morphometric measurements revealed variation among populations in numbers of fin rays, gill rakers and measurements associated with fins. Differences were more pronounced between fish from different habitat types (creeks versus lakes) than within habitat types.

Gonadal development of both sexes of fish from all localities commenced at the beginning of summer (December). Riverine fish spawned at the end of autumn (May), however, lacustrine fish did not spawn until early spring (September). Temperature is thought to be a major factor influencing the delay in spawning of lacustrine fish. The gonads of lacustrine females continued to grow after the riverine fish had spawned and a comparison of fish prior to spawning revealed a greater investment in reproduction in lacustrine females than riverine females in terms of weight of gonad relative to body weight. From the conversion of proximate constituents to energy values, reproductive investment in terms of the relative energy devoted to the gonad produced a similar result.

Greater somatic fat (and therefore energy) reserves were accumulated by lacustrine fish over summer than riverine fish and greater depletion of these reserves occurred during gonadal maturation of lacustrine fish. At peak levels, larger amounts of fat were incorporated into ovaries of lacustrine females than in those of riverine females. Ovaries generally possessed a larger percentage of fat than testes while testes had a greater percentage of water, protein and ash.

The relatively greater reproductive investment demonstrated by lacustrine fish was not apportioned in the same manner between lacustrine populations. Females from one population produced larger eggs whilst in females from the other population the

fecundity increased at a greater rate with body size, in one year of the study. An analysis of life history traits within the galaxiid family affirms the existence of two distinct life history strategies. Diadromous galaxiids spawn before winter, have small eggs and produce large number of eggs, probably related to the overall larger body size of this group. Totally freshwater galaxiids generally spawn after winter, have larger eggs and produce smaller numbers of eggs, which may reflect the overall smaller body size of this group. Although the spawning times of *G. truttaceus* from different habitats were consistent with those found in galaxiid species, egg size, fecundity and body size were not.

ANNUAL GENERAL MEETING HELD AT LAKE HUME RESORT, NSW, ON 10 MAY 1987.

The meeting started at 4.10 pm.

In the Chair - The President I. Campbell.

1. The agenda was accepted on the motion of G. Ganf, seconded by R. Shiel.

2. Apologies were received from: B. Hart, A. Arthington, B. Chessman, I. Smalls, B. Timms.

3. The minutes of the last AGM were accepted on the motion of D. Mitchell, seconded by G. Ganf.

4. President's report: The executive met 4 times during the last year and one of the main issues discussed was future organisation of the ASL. The society should consider becoming a limited liability company became at present the executive can be sued for injury incurred at a congress. In general the society should function more professionally but retain its informality. T. Hillman, D. Hoare and D. Mitchell are to be thanked for a good job organising the present congress. Thanks are due also to M. Hart, R. Marchant & M. Barson for their work during the year.

5. Secretary's report: correspondence during the past year has been rountine and has dealt mostly with matters from FASTS and the Academy of Science.

6. Treasurer - membership officer's report: current membership is 380 although not all are financial. In July or August another membership directory will be produced. Members were reminded to send changes of address. The financial statement was presented to members. The ASL still owes money to CSIRO for the book. The investement account will be switched to a new account where it will earn more interest. The statement was accepted on the motion of L. Macmillan, seconded by R. Norris. L. Macmillan moved that a $500 honorarium be paid to M. Hart. This was seconded by G. Ganf and passed.

7. The auditor's report from I. Hiscock was accepted on the motion of D. Mitchell, seconded by J. Chambers.

8. Bulletin editor's report: Bulletin has enough papers for press. The page proofs will be sent to authors soon. Bulletin 12 has received 4 papers, two of which are still with referees and two have been returned to authors for correction. This bulletin could possibly be published late this year or early next year.

9. Newsletter editor's report: 3 newsletters were produced in the last year. More material is always needed.

10. Jolly award committee report: J. Kirk (chairman) reported that no award had been made but past nominations can still be reconsidered provided they are suitably updated.

11. Student award committee report: P. Breen (Chairman) announced that J. Chambers was this year's winner and congratulated all students on the high standard of their papers.

12. Door prize committee report: T. Doeg (Chairman) presented two prizes: to M. Harvey for character assassination and N. O'Connor for various misdemeanours too numerous to mention.

13. 27th Congress (1988): R. Pearson spoke about Townsville where it will be held. A possible date is the weekend of April 15 and a possible venue is James Cook University. He also indicated tht a 2-3 day field trip could be organised for those who want to see something of the region.

14. 28th congress (1989): R. Norris spoke about holding this in Canberra at the CCAE. No firm dates are available yet but accommodation would be available on campus at about $15 per night. Two international pollution conferences are to be held in May 1989 in Canberra and it might be valuable to organise the ASL congress around these meetings.

15. D. Mitchell suggested a special symposium might be appropriate for Canberra.

16. J. Davis proposed Alice Springs for a conference in 1990. J. Roberts suggested Coopers Creek at Innamincka would be suitable for a meeting because of the abundance of interesting aquatic habitats. R. Fry suggested Jabiru N.T. might also be considered for a meeting. He thought it would be as expensive as Townsville to reach.

17. Reorganisation of the executive:

    a) First step is establishment of conference committees to relieve the load on the executive.

    b) Executive term should remain at one year for the present.

    c) Any changes would require changes in the constitution which would be circulated in the newsletter before the next conference. Changes would have to be approved at the AGM.

    d) The secretary will investigate how the ASL might become a limited liability company.

18. Election of the executive. The following were elected unopposed:

Present:	T. Hillman	(NSW)
Vice Present:	J. Davis	(WA)
Membership/Teasurer:	M. Hart	(VIC)
Secretary:	R. Marchant	(VIC)

Executive:

L. Loyd	(SA)
L. Barmuta	(SA)
R. Oliver	(NSW)
R. Norris	(ACT)
R. Pearson	(QLD)
M. Burch	(SA)
M. Finlayson	(NT)
A. Boulton	(VIC)

19. I. Hiscock was elected auditor unopposed.

20. General Business

20.1 ASL is now a full member of FASTS as agreed upon by the AGM at Lorne.

20.2 B. Hart has suggested the ASL has fellowships. B. Hart will be asked to expound on this in the newsletter.

20.3 Student travel subsidy: 2 students from WA, A. Pinder and M. De Haan, were subsidised to enable them to attend this conference.

20.4 W.D. Williams received a letter from colleagues at the FBA (U.K.) indicating a number of staff including senior members were soon to be made redundant. He asked that the executive on behalf of the ASL write to the appropriate people in the British Government deploring these sackings. He moved the following motion: "that the ASL noting:

1) The great significance of the FW environment in the UK for economic, scientific, cultural and other reasons;

2) The importance of continuing scientific investigation of this environment;

3) The great value of work undertaken to date by the FBA;

4) The international collaboration undertaken by the FBA; deplores the proposed funding cuts and requests that this matter be reconsidered as a matter of urgency". There was some discussion by the members about this. Most who spoke also deplored the funding cuts and the sacking of eminent scientists. It was suggested that any reponse by the ASL should be rapid. L. Macmillan proposed that the above motion should be voted on; this was seconded by L. Barmuta and passed. The above motion was then put to the meeting and carried unanimously.

20.5 I. Bayly wrote suggesting that the ASL should pay tribute to Lou Bennett (editor of AJMFR), who was about to retire, for creating a strong link between the ASL & AJMFR. The incoming executive was charged with organising a suitable memorial.

20.6 Alan Butler from the advisory committee of the AJMFR wrote pointing out:

a) that it was a journal with high standards;

b) that it had a high citation index;

c) that members of the ASL should send papers to it; and asking that as many members as possible should subscribe to the journal, if it was not to suffer funding cuts.

20.7 D. Mitchel of the Murray-Darling FW Research Centre spoke about this institute indicating that:

a) People should seek collaborative work

b) Student grants (about 2-4) which whould provide $10,000 for 3 years for field work based from Albury would be available.

c) Travel grants for researchers to visit the institute would be available.

d) Taxonomy and development of a voucher collection was a growing concern of the institute.

20.8 Membership fees will stay the same for the next year.

21. W.D. Williams thanked I. Campbell for his presidency over the past 2 years.

The meeting closed at 5.33 pm

R. Marchant
Secretary

Call for Papers

An international conference entitled The International Forested Wetlands Resource: Identification and Inventory is scheduled for September 18-22, 1988 in Baton Rouge, Louisiana, USA. The meeting is sponsored by the International Union of Forestry Research Organisations (IUFRO), Subject Group S4.02-00 - Forest Resource Inventory. Co-sponsors are the School of Forestry, Wildlife and Fisheries - Lousiana State University, the USDA Forest Service - Southern Forest Experiment Station, and the Society of American Foresters - the Working Groups of Inventory, Biometrics and Remote Sensing.

The conference is intended for all persons interested in the forest wetland resource from an ecological, economic, environmental, sociological and technical standpoint. The purpose is to provide a forum for the exchange of ideas about the importance of the forested wetlands resource, how to measure or inventory it, and how to use the inventory results. It will serve as an update of the world's forested wetland situation, as an update on modern approaches to the inventory of these forests and as a forecast of the future. The proceedings will be published.

Papers being solicited include:

(a) Definition and identification of international forested wetlands. In addition, topics of interest are present and potential uses and values, conflicts and problems (political, competing uses, environmental, etc.), current status of the resources and future trends for forested wetlands in general or specific locations.

(b) Inventory of the international forested wetlands. Included under this topic are discussions about the purposes of forest inventories, techniques and tools used in classification systems (remote sensing, ground measurements, etc.), problems associated with inventory measurements, use of inventory data (surveys, biometrics, etc.) and the current status of inventory and future trends.

Please send the title and abstract of your paper, a statement of preference for paper or poster presentation, along with your name, title, affiliation, address and telephone number to: Ben D. Jackson, Program Chairman, School of Forestry, Wildlife and Fisheries, Louisiana State University, Baton Rouge, LA 70803-6202 USA Ph: (504) 388 4216.

Abstracts must be received by 11 January 1988*. Notification of acceptance of papers will be given by 15 February 1988.

*Late papers from Down Under might be accepted but we suggest you send them immediately! (Editors).

COMING EVENTS

1988

2-7 MAY: 4th International Symposium on Athalassic (Inland) Saline Lakes, SIL, Barcelona. Contact: Dr Francisco Comin, Departament d'Ecologia, Universitat de Barcelona, Diagonal 645, 08028 Barcelona, Spain.

13-15 MAY: ASL 27th Annual Congress, Magnetic Island, Townsville, Qld. Contact: R. Pearson, Department of Zoology, James Cook University, Qld 4811. Ph: 077 814540.

23-26 MAY: Murray Basin '88 - Geology, Groundwater and Salinity Management. Murray Basin Groundwater Committee, Canberra. Contact: Conference Secretariat, ACTS, GPO Box 2200, Canberra 2601. Ph: (062) 57 3256.

28-30 JUNE : National Fisheries Forum and Exhibition '88 - Managing the marine environment for a fishing future. Contact : Ms Dawn Couchman, National Fisheries Forum and Exhibition 88, PO Box 344, Fortitude Valley, Qld. 4006.

10-15 JULY: Conference on water quality and management for recreation and tourism, Brisbane. Contact: R. Sadler, PO Box 388, North Quay Qld 4000.

25-28 JULY: 10th International Symposium on Chironomidae, Debrecen, Hungary. Contact: Dr Gy. Devai, Secretary, Department of Ecology, L. Kossuth University, PO Box 14, M-4010 Debrecen, Hungary.

15-19 AUGUST: Fourth International Symposium on Regulated Streams, University of Technology, Loughborough, England. Contact: Dr G.E. Petts, Department of Geography, University of Technology, Loughborough, Leicestershire, LE11 3TU, UK.

6-16 AUGUST : SLEADS* Conference '88 (*Salt Lakes, Evaporites and Aeolian Deposits) Arid zone hydrology, geochemistry, biology, stratigraphy and palaeoenvironments. Australian research with global comparisons. Contact: Dr Allan Chivas, Research School of Earth Sciences, ANU, GPO Box 4, Canberra ACT 2601.

28 AUGUST - 2 SEPTEMBER: Australian ecosystems: 200 years of utilization, degradation and reconstruction, Ecological Society of Australia, Geraldton, WA. contact: Dr R.A. How, Symposium Secretary, ESA, Western Australian Museum, Francis Street, Perth WA 6000.

29 AUGUST - 2 SEPTEMBER: First biennial water quality symposium: Microbiological aspects, Banff, Canada. Co-sponsors, WHO, PAHO, IDRC Ottawa, EC H & WC, AE. Contact: B.J. Dutka or D. Liu, National Water Research Institute, PO Box 5050, 867 Lakeshore Road, Burlington, Ontario, Canada L7R 4A6.

11-17 SEPTEMBER: Third International Conference on the conservation and management of lakes "Balaton '88", Hungary. Contact: Dr Sandor Herodek, Balaton Limnological Research Institute

of the Hungarian Academy of Sciences, Tihany, POB 35, Hungary 8237.

1989

28-30 April : ASL 28th Congress and AGM Canberra CAE, Belconnen ACT. Contact: Dr R. Norris, Water Research Centre, School of Applied Science. CCAE, PO Box 1, Belconnen ACT 2616.

1990

23-30 August : V International Congress of Ecology "Development of Ecological Perspectives for the 21st Century", Yokohama, Japan. Contact: Secretary General's Office for Intecol 1990, Institute of Environmental Science and Technology, Yokohama National University, Yokohama 240, Japan.

AH...AT LAST?...I CAN LEARN TO USE A COMPUTER; JUST FOLLOW REGGIE'S LEAD...
Type in PRINT "HELLO"
...the screen should look something like this:
READY
PRINT "HELLO"
PARDON?
...the computer executed your command as soon as you typed RETURN
...I SAID PRINT HELLO!
...of course, this is a trivial example...
DUMB SLEEP!
WHERE IS THE PLEASE?
...the computer will patiently wait in case you want to type something else as well
1,2,3....
UP YOURS
...let's write a simple program.....
YAWN
...if you make a mistake while typing a program, don't worry about it...
HEY! DOAN! KARNT YOU SPEL?
...if you want...
[UH OH!] WAIT ON... ...LET'S BE FRIENDS...
...just hit return...
...that will get rid of it...
PANT PANT PANT
SPANG

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